

Swing Check Valve

## SICCA 900-3600 SCC

Class 900-3600  
NPS 2-28 Inches

### Type Series Booklet



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Type Series Booklet SICCA 900-3600 SCC

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## Check Valves and Strainers

### Swing Check Valves to ANSI/ASME

## SICCA 900-3600 SCC



#### Main applications

- Boiler feed applications
- Fossil-fuelled power stations
- Petrochemical industry
- Pipelines and tank farms
- Refineries
- Process engineering

#### Fluids handled

- Steam
- Fluids containing gas
- Gas
- High-temperature hot water
- Volatile fluids
- Feed water

#### Operating data

##### Operating properties

Characteristic	Value
Nominal pressure	Class 900 - 3600
Nominal size [inch]	NPS 2 - 28
Max. permissible pressure [bar]	620
Max. permissible pressure [psi]	9000
Min. permissible temperature [°C]	≥ 0
Max. permissible temperature [°C]	≤ +650
Min. permissible temperature [°F]	≥ 0
Max. permissible temperature [°F]	≤ +1200

Selection as per pressure/temperature ratings (⇒ Page 5)

#### Body materials

##### Overview of available materials

Material	Temperature limit	
	[°C]	[°F]
ASTM A216 WCB	≤ 425	≤ 800
ASTM A216 WCC	≤ 425	≤ 800
ASTM A217 WC6	≤ 593	≤ 1100
ASTM A217 WC9	≤ 593	≤ 1100
ASTM A217 C12A	≤ 650	≤ 1200

#### Design details

##### Design

- Swing check valve to ASME B16.34
- Cast steel body
- Seat/disc interface made of wear-resistant and corrosion-proof Stellite
- Pressure seal design
- Internally mounted hinge pin
- Butt weld ends
- "Special Class" version
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.
- The valves meet the requirements of the Indian Boiler Regulations 1950.

#### Variants

- Drain plug
- Drain branch

#### Product benefits

- Additional features ensure safe sealing to atmosphere:
  - Risk of leakage is reduced by internally mounted hinge pin.
  - Fully confined cover gasket with controlled compression ensures leak-proof joint.
- Reliable, tight shut-off
  - Hard-faced body seat made of wear-resistant and corrosion-resistant 13 % chrome steel or Stellite.
  - High-grade surface finish: lapped seat/disc interface
  - Self-aligning valve disc ensures tight shut-off.
  - Valve disc opens at low differential pressure.
  - Zero leakage thanks to perfect contact at seat/disc interface.
- Economic benefits
  - Streamlined flow path minimises pressure losses.

#### Related documents

##### Information/documents

Document	Reference number
Type series booklet	7246.1
SICCA 150-600 SCC	
Operating manual	0500.80

**Purchase order specifications**

Please specify the following information in all enquiries or purchase orders:

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Type</li> <li>2. Class</li> <li>3. Nominal size</li> <li>4. Design pressure</li> <li>5. Design temperature</li> <li>6. Operating pressure</li> <li>7. Operating temperature</li> </ol> | <ol style="list-style-type: none"> <li>8. Differential pressure</li> <li>9. Material</li> <li>10. Fluid handled</li> <li>11. Flow rate</li> <li>12. Pipe connection</li> <li>13. Pipe schedule</li> <li>14. Variants</li> <li>15. Reference number</li> </ol> |
|--|---|

Always indicate the original serial number and the year of construction when ordering spare parts.

**Pressure/temperature ratings**

Permissible operating pressures [bar] (in acc. with ASME B16.34 Standard Class)

Class	Material	[°C]																	
		-29 to +38	93	149	204	260	316	343	371	399	427	454	482	510	538	566	593	621	649
900	A216 WCB <sup>1)</sup>	153	140	136	131	125	118	114	110	105	85	66	48	28	18	-	-	-	-
1500		256	234	226	219	208	196	189	184	175	142	110	79	47	30	-	-	-	-
2500		425	390	376	364	347	326	315	305	292	237	183	132	79	49	-	-	-	-
3100		528	482	466	453	433	400	388	376	359	297	238	180	121	61	-	-	-	-
3600		613	559	541	526	503	465	451	436	417	345	276	209	141	71	-	-	-	-
900	A216 WCC	155	154	150	145	139	124	120	113	104	86	69	51	34	17	-	-	-	-
1500		258	257	250	243	231	206	200	189	173	143	115	85	57	29	-	-	-	-
2500		430	429	418	405	386	344	333	315	289	239	191	142	96	49	-	-	-	-
3100		534	533	519	503	479	427	414	391	359	297	238	177	120	61	-	-	-	-
3600		621	618	602	584	556	496	480	454	417	345	276	205	139	71	-	-	-	-
900	A217 WC6 <sup>2)3)</sup>	155	155	149	143	138	125	122	118	110	105	101	93	66	45	30	20	13	9
1500		259	259	249	239	229	209	203	196	183	175	168	155	110	75	50	33	22	14
2500		431	431	415	398	382	348	338	326	305	292	280	258	183	124	83	55	38	24
3100		534	532	514	496	479	427	416	401	378	362	349	327	266	154	-	-	-	-
3600		621	618	597	576	556	496	483	465	439	420	406	380	309	179	-	-	-	-
900	A217 WC9 <sup>2)3)</sup>	155	155	151	146	138	125	122	118	110	105	101	93	80	55	36	23	14	9
1500		259	259	251	243	229	209	203	196	183	175	168	155	133	92	60	38	24	14
2500		431	431	419	405	382	348	338	326	305	292	280	258	222	154	100	63	39	24
3100		534	433	519	503	479	427	416	401	378	362	349	327	291	191	-	-	-	-
3600		621	618	602	584	556	496	483	465	439	420	406	380	338	221	-	-	-	-
900	A217 C12A	155	155	151	146	138	125	122	118	110	105	101	93	80	75	75	62	46	30
1500		259	259	251	243	229	209	203	196	183	175	168	155	133	126	124	104	77	50
2500		430	431	419	405	382	348	338	326	305	292	280	258	222	209	207	173	128	83
3100		534	533	519	503	479	427	416	401	378	362	349	327	291	259	-	-	-	-
3600		621	618	602	584	556	496	483	465	439	420	401	380	338	301	-	-	-	-

Permissible operating pressures [bar] (in acc. with ASME B16.34 Special Class)

Class	Material	[°C]																	
		-29 to +38	93	149	204	260	316	343	371	399	427	454	482	510	538	566	593	621	649
900	A216 WCB <sup>1)</sup>	155	155	153	152	152	152	148	143	131	107	82	59	35	22	-	-	-	-
1500		259	259	255	253	253	253	247	238	218	177	138	99	59	37	-	-	-	-
2500		430	431	425	421	421	421	411	397	364	295	229	165	99	62	-	-	-	-
3100		534	534	527	523	522	518	505	487	449	372	297	225	152	76	-	-	-	-
3600		621	621	613	606	606	606	592	572	525	426	330	238	142	89	-	-	-	-
900	A216 WCC	155	155	155	155	155	153	145	130	108	86	54	43	22	-	-	-	-	
1500		259	259	259	259	259	256	242	217	180	144	107	72	37	-	-	-	-	
2500		431	431	431	431	431	431	426	403	362	300	237	178	121	62	-	-	-	-
3100		534	534	534	534	534	534	528	500	449	372	297	221	152	76	-	-	-	-
3600		621	621	621	621	621	621	613	581	521	431	345	256	174	89	-	-	-	-
900	A217 WC6 <sup>2)3)</sup>	155	155	155	155	155	155	152	151	149	140	121	82	56	37	25	17	11	
1500		259	259	259	259	259	259	253	251	248	233	202	138	93	62	41	28	18	
2500		431	431	431	431	431	431	431	421	419	414	389	338	229	155	103	69	47	30
3100		534	534	534	534	534	534	531	522	519	513	488	442	332	192	-	-	-	-
3600		621	621	621	621	621	621	617	606	603	596	566	513	586	223	-	-	-	-
900	A217 WC9 <sup>2)3)</sup>	155	155	153	151	150	149	148	146	146	140	124	98	69	45	28	18	11	

- 1) Permissible but not recommended for prolonged use above 427 °C (800 °F).
- 2) Use normalised and tempered materials only.
- 3) Cannot be used for temperatures above 593 °C (1100 °F)

Class	Material	[°C]																	
		-29 to +38	93	149	204	260	316	343	371	399	427	454	482	510	538	566	593	621	649
1500	A217 WC9 <sup>(2)(3)</sup>	259	259	255	251	250	249	247	244	244	244	233	207	163	115	76	47	30	18
2500		431	431	425	418	416	414	411	406	406	406	389	345	271	192	126	79	49	30
3100		534	533	527	519	517	513	508	504	504	504	488	442	369	238	-	-	-	-
3600		621	620	611	603	600	595	591	585	585	585	566	513	428	277	-	-	-	-
900	A217 C12A	155	155	155	156	155	155	155	152	151	149	140	124	98	87	87	78	58	37
1500		259	259	259	259	259	259	259	253	251	248	233	207	163	145	145	130	96	62
2500		431	431	431	431	431	431	431	421	419	414	389	345	271	242	242	217	160	103
3100		534	534	534	534	534	534	531	522	519	513	488	442	369	300	-	-	-	-
3600		621	621	621	621	621	621	617	606	603	596	566	513	428	348	-	-	-	-

Permissible operating pressures [psi] (in acc. with ASME B16.34 Standard Class)

Class	Material	[°F]																	
		-20 to +100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
900	A216 WCB <sup>1)</sup>	2222	2035	1965	1900	1810	1705	1650	1590	1520	1235	955	690	410	255	-	-	-	-
1500		3705	3395	3270	3170	3015	2840	2745	2665	2535	2055	1595	1150	685	430	-	-	-	-
2500		6170	5655	5450	5280	5025	4730	4575	4425	4230	3430	2655	1915	1145	715	-	-	-	-
3100		7653	6984	6755	6564	6286	5802	5630	5451	5203	4311	3448	2613	1761	885	-	-	-	-
3600		8887	8110	7845	7623	7300	6738	6538	6330	6043	5007	4004	3034	2045	1028	-	-	-	-
900	A216 WCC	2250	2242	2183	2115	2016	1799	1742	1646	1511	1252	1001	744	503	257	-	-	-	-
1500		3571	3736	3638	3527	3362	2997	2902	2744	2518	2086	1668	1239	840	428	-	-	-	-
2500		6250	6228	6064	5880	5601	4994	4837	4573	4196	3477	2780	2065	1400	714	-	-	-	-
3100		7750	7723	7520	7291	6944	6192	5998	5670	5203	4311	3448	2561	1736	885	-	-	-	-
3600		9000	8969	8732	8467	8063	7190	6965	6585	6043	5007	4004	2974	2015	1028	-	-	-	-
900	A217 WC6 <sup>(2)(3)</sup>	2250	2250	2165	2080	1995	1815	1765	1705	1595	1525	1460	1350	955	650	430	290	195	125
1500		3750	3750	3610	3465	3325	3025	2940	2840	2660	2540	2435	2245	1595	1080	720	480	325	205
2500		6250	6250	6015	5775	5540	5040	4905	4730	4430	4230	4060	3745	2665	1800	1200	800	545	345
3100		7750	7715	7455	7187	6944	6192	6029	5813	5482	5244	5067	4745	3856	2232	-	-	-	-
3600		9000	8960	8658	8347	8063	7190	7001	6751	6365	6089	5884	5510	4478	2592	-	-	-	-
900	A217 WC9 <sup>(2)(3)</sup>	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1160	800	525	330	205	125
1500		3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1335	875	550	345	205
2500		6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	2230	1454	915	570	345
3100		4750	7723	7521	7291	6944	6192	6029	5813	5482	5244	5067	4745	4226	2764	-	-	-	-
3600		9000	8969	8735	8468	8063	7190	7001	6751	6365	6089	5884	5510	4908	3210	-	-	-	-
900	A217 C12A	2250	2250	2185	2115	1995	1815	1765	1705	1595	1525	1460	1350	1160	1090	1080	905	670	430
1500		3750	3750	3640	3530	3325	3025	2940	2840	2660	2540	2435	2245	1930	1820	1800	1510	1115	720
2500		6250	6250	6070	5880	5540	5040	4905	4730	4430	4230	4060	3745	3220	3030	3000	2515	1855	1200
3100		7750	7723	7521	7291	6944	6192	6029	5813	5482	5244	5067	4745	4226	3756	-	-	-	-
3600		9000	8969	8735	8468	8063	7190	7001	6751	6365	6089	5884	5510	4908	4361	-	-	-	-

Permissible operating pressures [psi] (in acc. with ASME B16.34 Special Class)

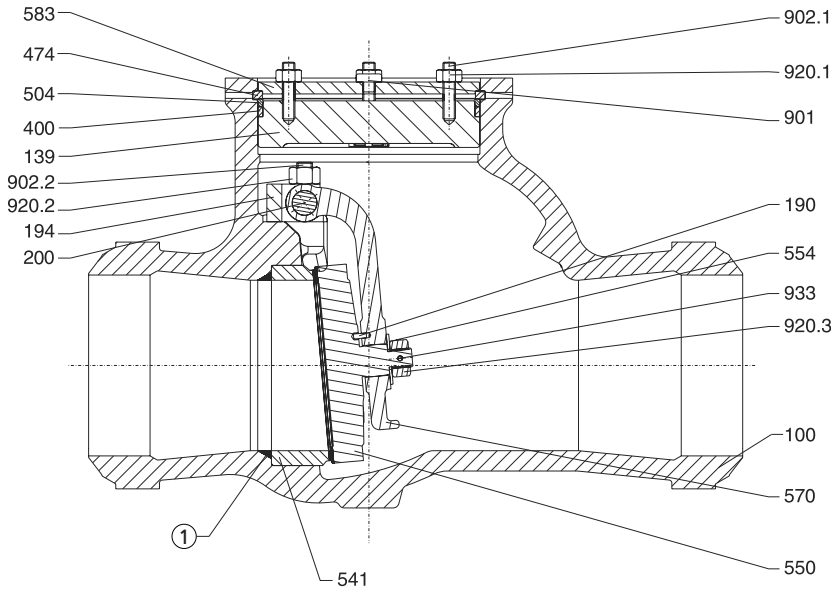
Class	Material	[°F]																	
		-20 to +100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
900	A216 WCB <sup>1)</sup>	2250	2250	2220	2200	2200	2200	2145	2075	1905	1545	1195	860	515	320	-	-	-	-
1500		3750	3750	3700	3665	3665	3665	3575	3455	3170	2570	1995	1435	855	535	-	-	-	-
2500		6250	6250	6170	6105	6105	6105	5960	5760	5285	4285	3320	2395	1430	895	-	-	-	-
3100		7750	7739	7649	7579	7573	7511	7331	7059	6505	5388	4310	3266	2202	1108	-	-	-	-
3600		9000	9000	8884	8795	8795	8795	8584	8293	7612	6172	4783	3446	2057	1286	-	-	-	-
900	A216 WCC	2250	2250	2250	2250	2250	2250	2223	2105	1888	1565	1252	785	630	322	-	-	-	-
1500		3751	3751	3751	3751	3751	3751	3706	3509	3147	2608	2086	1549	1050	535	-	-	-	-
2500		6250	6250	6250	6250	6250	6250	6176	5847	5246	4345	3475	2582	1751	893	-	-	-	-
3100		7750	7750	7750	7750	7750	7750	7658	7250	6505	5388	4310	3201	2171	1108	-	-	-	-
3600		9000	9000	9000	9000	9000	8893	8419	7554	6257	5005	3718	2520	1286	-	-	-	-	
900	A217 WC6 <sup>(2)(3)</sup>	2250	2250	2250	2250	2250	2250	2250	2200	2185	2160	2030	1760	1195	810	540	360	245	155
1500		3750	3750	3750	3750	3750	3750	3750	3665	3645	3600	3385	2935	1995	1350	900	600	405	255
2500		6250	6250	6250	6250	6250	6250	6250	6110	6070	6000	5645	4895	3320	2250	1500	1000	680	430
3100		7750	7750	7750	7750	7750	7750	7708	7569	7524	7440	7070	6408	4820	2790	-	-	-	-
3600		9000	9000	9000	9000	9000	8951	8789	8738	8640	8210	7441	5597	3240	-	-	-	-	
900	A217 WC9 <sup>(2)(3)</sup>	2250	2250	2220	2185	2175	2165	2145	2120	2120	2120	2030	1800	1415	1005	655	410	255	155
1500		3750	3750	3695	3640	3620	3605	3580	3535	3535	3535	3385	3000	2360	1670	1095	685	430	255
2500		6250	6250	6160	6065	6035	6010	5965	5895	5895	5895	5645	5000	3930	2785	1820	1145	715	430
3100		7750	7737	7636	7527	7491	7433	7374	7307	7307	7307	7070	6408	5350	3455	-	-	-	-
3600		9000	8984	8868	8741	8699	8632	8564	8485	8485	8485	8210	7441	6213	4012	-	-	-	-
900	A217 C12A	2250	2250	2250	2250	2250	2250	2250	2200	2185	2160	2030	1800	1415	1260	1260	1130	835	540
1500		3750	3750	3750	3750	3750	3750	3750	3665	3645	3600	3385	3000	2360	2105	2105	1885	1395	900

Class	Material	[°F]																	
		-20 to +100	200	300	400	500	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200
2500	A217 C12A	6250	6250	6250	6250	6250	6250	6250	6110	6070	6000	5645	5000	3930	3505	3505	3145	2320	1500
3100		7750	7750	7750	7750	7750	7750	7708	7569	7524	7440	7070	6408	5350	4347	-	-	-	-
3600		9000	9000	9000	9000	9000	9000	8951	8789	8738	8640	8210	7441	6213	5048	-	-	-	-

Test pressure

Test	Test medium	Class 900	Class 1500	Class 2500	Class 3100	Class 3600
		[bar]	[bar]	[bar]	[bar]	[bar]
Shell	Water	233	388	647	802	931
Leak test (seat)		171	285	474	588	683

Materials



① Seal-welded

Parts list

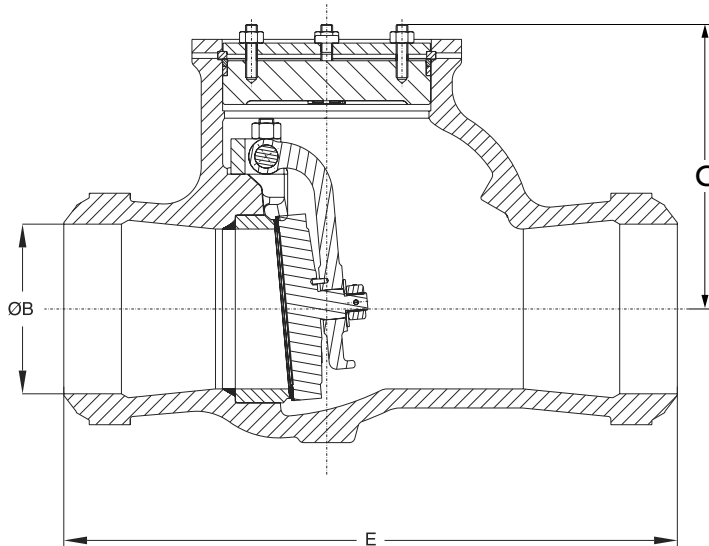
Part No.	Description	Class	Material
100	Body	900 / 1500 / 2500 / 3100 / 3600	A216 WCB
			A217 WC6
			A217 WC9
			A217 C12A
		3100 / 3600	A216 WCC
139	Bonnet <sup>4)</sup>	900 / 1500 / 2500 / 3100 / 3600	A216 WCB / A105
			A217 WC6 / A182 F11
			A217 WC9 / A182 F22
			A217 C12A / A182 F91
190	Parallel pin	900 / 1500 / 2500 / 3100 / 3600	SS304
194	Hinge bracket	900 / 1500 / 2500 / 3100 / 3600	A516 60 (IS 2002-2)
			A182 GR F22 CL3
200	Hinge pin	900 / 1500 / 2500 / 3100 / 3600	A479 410-2
400	Gasket	900 / 1500 / 2500 / 3100 / 3600	Graphite
474	Thrust ring	900 / 1500 / 2500 / 3100 / 3600	A336 F91
504	Spacer ring	900 / 1500 / 2500 / 3100 / 3600	A182 F22 CL3
541	Seat ring	900 / 1500 / 2500 / 3100 / 3600	A105+ST6
			A182 F11+ST6
			A182 F22+ST6
			A182 F91+ST6
550	Valve disc <sup>5)</sup>	900 / 1500 / 2500 / 3100 / 3600	A216 WCB+ST6 / A105+ST6
			A217 WC9+ST6 / A182 F22+ST6
			A182 F91+ST6 / A217 C12A+ST6
554	Washer	900 / 1500 / 2500 / 3100 / 3600	A276 TYPE 304
			A182 F22 CL3
570	Hanger arm	900 / 1500 / 2500 / 3100 / 3600	A216 WCB
			A217 WC9
			A217 C12A
583	Supporting plate	900 / 1500 / 2500 / 3100 / 3600	A516 60 (IS 2002-2)
902	Stud	900 / 1500 / 2500 / 3100 / 3600	A193 B7
			A193 B16
920.1	Nut	900 / 1500 / 2500 / 3100 / 3600	A194 2H
			A194 4/7

4) Forged up to 6 inches with reduced bore  
5) Forged up to 8 inches with reduced bore



Part No.	Description	Class	Material
920.2	Nut	900 / 1500 / 2500 / 3100 / 3600	A194 2H A194 4/7
920.3	Nut	900 / 1500 / 2500 / 3100 / 3600	SS 304
933	Split pin	900 / 1500 / 2500 / 3100 / 3600	A276 TYPE 304

Dimensions and weights



Dimensions and weights

Class	NPS	ØB	C <sup>6)</sup>	E	[kg] <sup>6)</sup>
	[inch]	[mm]	[mm]	[mm]	
900	2	49,5	145	215,9	20
	3	73,5	180	304,8	35
	4	92,0	200	355,6	40
	5	116,0	200	356,0	45
	6	140,0	265	508,0	90
	8	182,5	290	660,4	145
	10	230,0	335	787,4	245
	12	273,0	410	914,4	380
1500	2	43,0	145	215,9	20
	3	66,5	180	304,8	35
	4	87,5	210	406,4	60
	5	109,5	220	406,0	65
	6	131,5	285	558,8	130
	8	173,0	315	711,2	210
	10	216,0	380	863,6	365
	12	257,0	440	990,6	570
	14	284,0	475	1066,8	750
	16	325,5	550	1194,0	1070
	18	366,5	620	1194,0	1415
	20	408,0	665	1346,0	1895
24	490,5	770	1473,0	2940	
2500	2	38,0	165	279,4	30
	3	58,5	195	368,3	50
	4	80,0	230	457,2	80
	5	103,0	240	457,0	95
	6	124,5	300	610,0	180
	8	174,5	340	762,0	300
	10	216,0	425	914,4	540
	12	257,0	495	1041,4	850
	14	284,0	545	1041,0	1075
	16	325,5	610	1118,0	1475
	18	366,5	700	1245,0	2035
	20	408,0	730	1397,0	2650
24	490,5	835	1575,0	4170	
3100	3	42,4	205	410	70
	4	49,8	225	452	95
	6	89,1	325	600	270

6) Approximate values

Class	NPS	ØB	C <sup>(6)</sup>	E	[kg] <sup>(6)</sup>
	[inch]	[mm]	[mm]	[mm]	
3100	8	119,1	390	700	475
	10	150,9	465	825	790
	12	180,8	550	1030	1330
	14	199,5	575	1030	1600
	16	229,5	650	1200	2290
	18	259,4	735	1245	3000
	20	289,4	785	1345	3815
	22	319,3	845	1450	4885
	24	348	890	1540	6025
	26	377,6	950	1665	7475
	28	406,6	995	1730	8885
3600	3	37,8	210	436	80
	4	44,7	230	475	115
	6	80,6	355	670	350
	8	107,9	410	795	605
	10	137	470	861	940
	12	164,3	565	1058	1610
	14	181,4	625	1177	2120
	16	208,8	665	1272	2815
	18	235,9	725	1380	3745
	20	262,1	795	1545	4950
	22	288,4	850	1615	6140
	24	314,6	945	1685	7745
	26	377,6	1010	1930	9940
	28	367	1010	1970	11380

#### Mating dimensions as per standard

Face-to-face lengths: ASME B16.10

Butt weld ends: ASME B16.25

#### Installation information

The valve bodies are marked with an arrow indicating the flow direction.

Swing check valves must preferably be installed in horizontal pipes. When installing them in vertical pipes, make sure that the flow direction is upward, so that in the unpressurised condition, the disc will be closed by its own weight.



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